

# DENON

Hi-Fi Integrated Amplifier

## SERVICE MANUAL MODEL PMA-500V

SOLID STATE  
INTEGRATED AMPLIFIER



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## NIPPON COLUMBIA CO., LTD.

## SPECIFICATIONS

## POWER AMPLIFIER SECTION

<b>Rated Output Power:</b>	Both channel drives (TUNER → SP OUT) 80 Watts minimum rms per channel) (8 ohm Load) with less than 0.05% total harmonic distortion from 20 Hz to 20 kHz. 1 kHz (4 ohm Load) 130 W + 130 W (DIN, T.H.D 1%)
<b>Total Harmonic Distortion:</b>	0.007% (20 Hz — 20 kHz at —3 dB rated output 8 ohm Load) 0.003% 1 kHz (at rated output 8 ohm Load)
<b>Input Sensitivity:</b>	150 mV
<b>Input Impedance:</b>	30 k ohm

## EQUALIZER AMPLIFIER SECTION

## Equalizer Amplifier

<b>Output:</b> (REC OUT Terminal)	Rated Output: 150 mV
<b>Input Sensitivity Input Impedance:</b>	PHONO MM 2.5 mV 47 k ohm MC 200 $\mu$ V 100 ohm CD, VIDEO-1, VIDEO-2, TUNER/AUX, TAPE 150 mV 47 k ohm
<b>RIAA Deviation:</b>	PHONO MM within $\pm 0.2$ dB (20 Hz — 20 kHz) MC within $\pm 0.3$ dB (20 Hz — 50 kHz)
<b>Maximum Input Voltage:</b>	PHONO MM 160 mV/1 kHz MC 12 mV/1 kHz

## OVERALL CHARACTERISTICS

<b>SN Ratio (IHFA Network):</b>	PHONO MM 88 dB (input terminals short-circuited for 5 mV input)
	MC 68 dB (input terminals short-circuited for 500 $\mu$ V input)
	TUNER/AUX, CD, TAPE, VIDEO-1, VIDEO-2 105 dB (input terminals short-circuited)
<b>Tone Control Adjustable Range:</b>	BASS 100 Hz $\pm 10$ dB TREBLE 10 kHz $\pm 10$ dB
<b>Filtering Characteristics:</b>	SUBSONIC 16 Hz, 12 dB/oct
<b>Loud Characteristics:</b>	Low frequency 100 Hz + 7 dB High frequency 10 kHz + 6 dB

## AC OUTLET:

(For U.S.A.,  
Canada and Asia)SWITCHED x 2, 100 W (Total)  
UNSWITCHED x 1,250 W

## POWER SOURCE:

Germany and France AC 220 V, 50 Hz;  
U.K. and Australia AC 240 V, 50 Hz;  
U.S.A. and Canada AC 120 V, 60 Hz;  
Asia 110/120/220/240 V, 50/60 Hz  
(Multiple)**POWER CONSUMPTION:** 3.4A or 170 W (U.S.A.); 3.4A (Canada);  
190 W (IEC); 150 W (Multiple)

## DIMENSIONS:

434 mm (17-3/32")W x 137 mm  
(5-25/64")H x 385 mm (15-5/32")D  
(including rubber feet, control knobs,  
and terminals.)

## WEIGHT:

9.4 kg (20 lbs 12 oz) (For U.S.A. & Canada)  
9.7 kg (21 lbs 7 oz) (For Europe, Multiple  
and Australia Version.)

Design and specifications are subject to change without prior notice.

**NOTE:** The following codes correspond to the appropriate models.  
E3 for U.S.A., EA for Australia, EC for Canada  
This Service Manual is prepared based on E2 for Black Version.

For United Kingdom model only.

## WARNING:

As the colours of the wires in the mains lead of this appliance may not  
correspond with the coloured markings identifying the terminals in  
your plug proceed as follows:The wire which is coloured blue must be connected to the  
terminal which is marked with the letter N or coloured black.  
The wire which is coloured brown must be connected to the  
terminal which is marked with the letter L or coloured red.The wire which is coloured BROWN must be connected to  
the terminal which is marked with the letter L or coloured  
RED.

## IMPORTANT

The wires in this mains lead are coloured in accordance with the fol-  
lowing code:Blue: Neutral  
Brown: Live

For Australia model only.

## FOR YOUR SAFETY

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin  
power point which is effectively earthed through the normal household wiring.Extension cords used with the equipment must be three-core and be correctly wired to provide  
connection to earth. Wrongly wired extension cords are a major cause of fatalities.The fact that the equipment operates satisfactorily does not imply that the power point is earthed and  
that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the  
power point, consult a qualified electrician.

For U.S.A. and Canada models.

## CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION  
CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO  
PREVENT BLADE EXPOSURE.

## NAMES AND FUNCTIONS OF PARTS

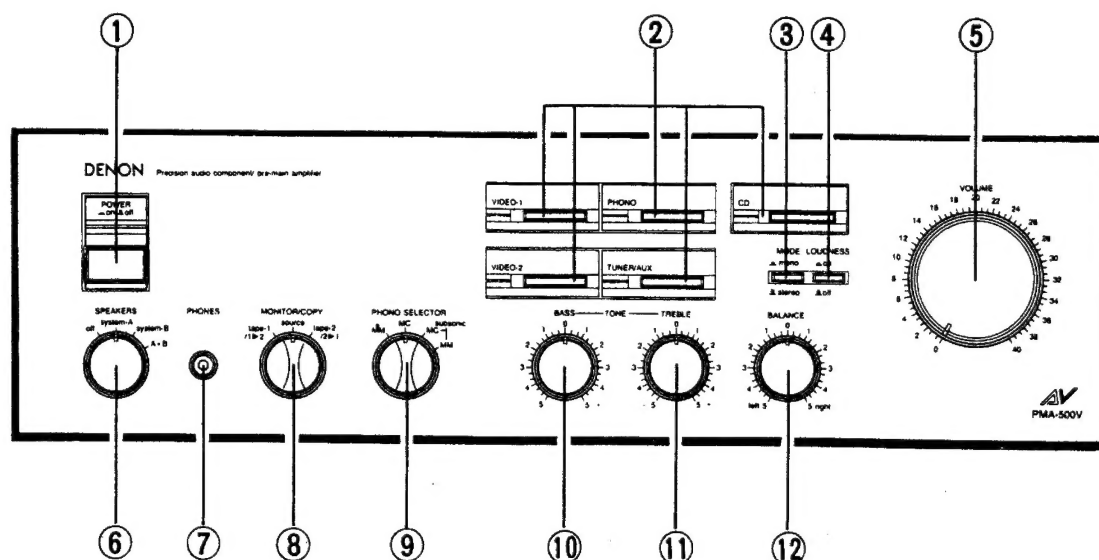






Fig. 1

- |  |  |
|--|--|
| <p>① POWER and LED indicator<br/>(Power supply button and LED indicator)</p> <p>② INPUT SELECTOR (Input signal selection button)<br/>CD, PHONO, VIDEO-1, VIDEO-2, TUNER/AUX<br/>(for outside Europe, Australia and U.K. Models.)<br/>CD, PHONO, AUX/VIDEO 1, AUX/VIDEO 2,<br/>TUNER<br/>(for Europe, Australia and U.K. Models.)</p> <p>③ MODE (Mode button)<br/>Stereo , mono </p> <p>④ LOUDNESS (Loudness button)<br/> on,  off</p> <p>⑤ VOLUME (Adjustment of the volume)</p> | <p>⑥ SPEAKERS (Speaker selection switch)<br/>off, System-A, System B, A+B</p> <p>⑦ PHONES (Headphone Jack)</p> <p>⑧ MONITOR COPY (Tape monitor/Copy switch)</p> <p>⑨ PHONO SELECTOR (Cartridge selection/Subsonic filter switch)<br/>Subsonic<br/>MM, MC, MC-MM</p> <p>⑩ BASS (Regulation of low notes)</p> <p>⑪ TREBLE (Regulation of high notes)</p> <p>⑫ BALANCE (Balance adjustment)</p> |
|--|--|

**Video Input Function**

The PMA-500V provides a video input function. The image selection circuitry gives preference to VIDEO-1 for all settings of the INPUT SELECTOR button, unless VIDEO-2 has been specified. This function might be used, for example, to watch a TV monitor while playing a compact disc. In this case it would connect the image input circuitry of the VIDEO-1 terminal to the image output of a video recorder, tape recorder, or video disc recorder. The resultant monitor out signal would be sent to the TV monitor, for "background video" audio-visual entertainment combining sound and images.

**Note:**

Please note the following differences in the markings on the front and back panels on the European U.K. and Australia models:

VIDEO-1 → AUX/VIDEO 1

VIDEO-2 → AUX/VIDEO 2

TUNER/AUX → TUNER

In addition, there is no AV mark on the front panel.

## REMOVAL OF EACH SECTION

### 1. Removal of Top Cover

- Remove 8 screws and detach the top cover as per arrow in Fig. 2.

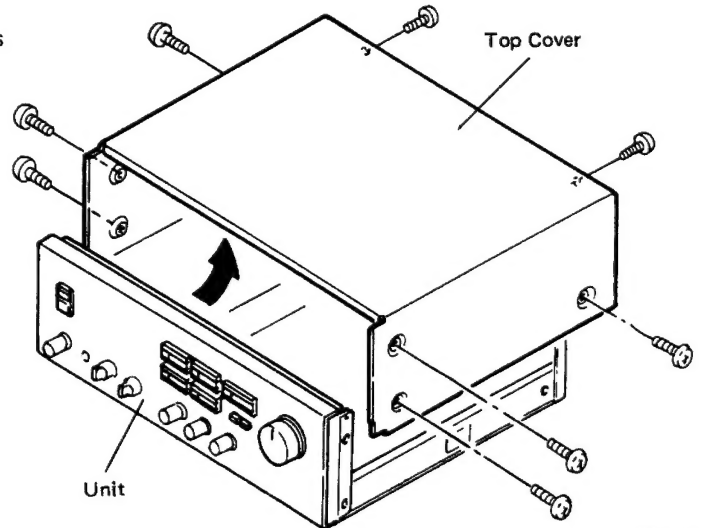


Fig. 2

### 2. Removal of Back Panel

- Remove 3 screws (A) and 7 screws (B) as per Fig. 3. Also remove screw (C) and detach back panel from the unit.

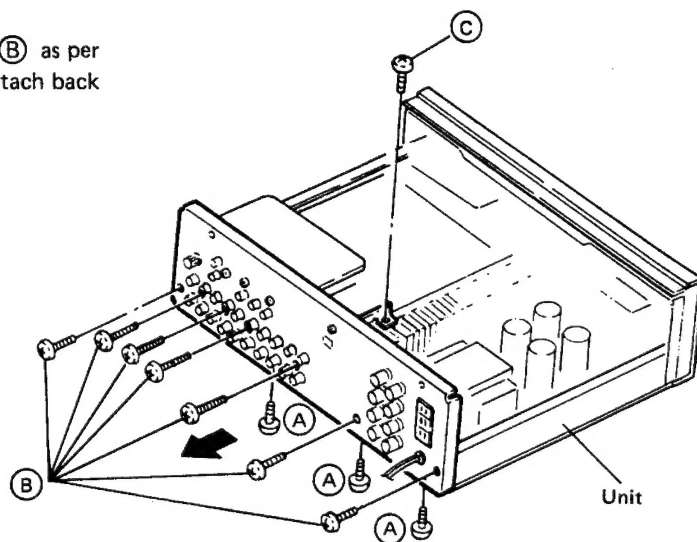


Fig. 3

### 3. Removal of Front Panel Ass'y

- Remove 4 screws (D) and remove 2 screws (E). And draw out front panel ass'y.

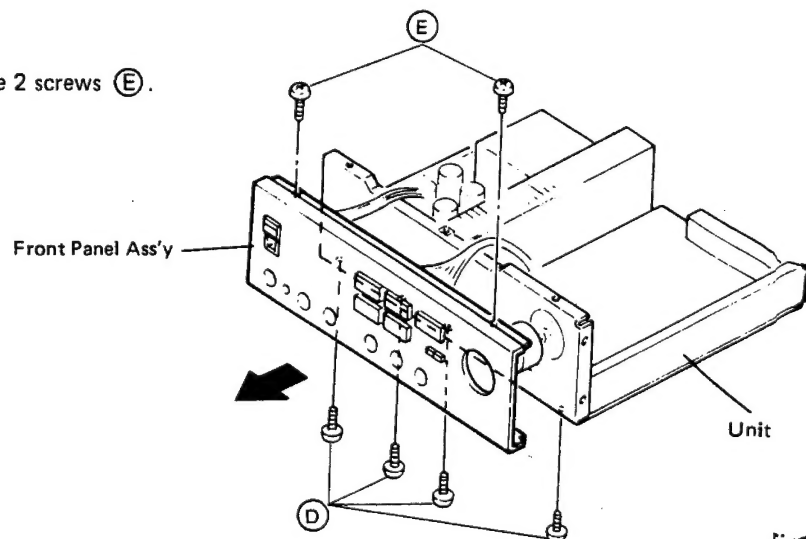


Fig. 4



## CONNECTIONS

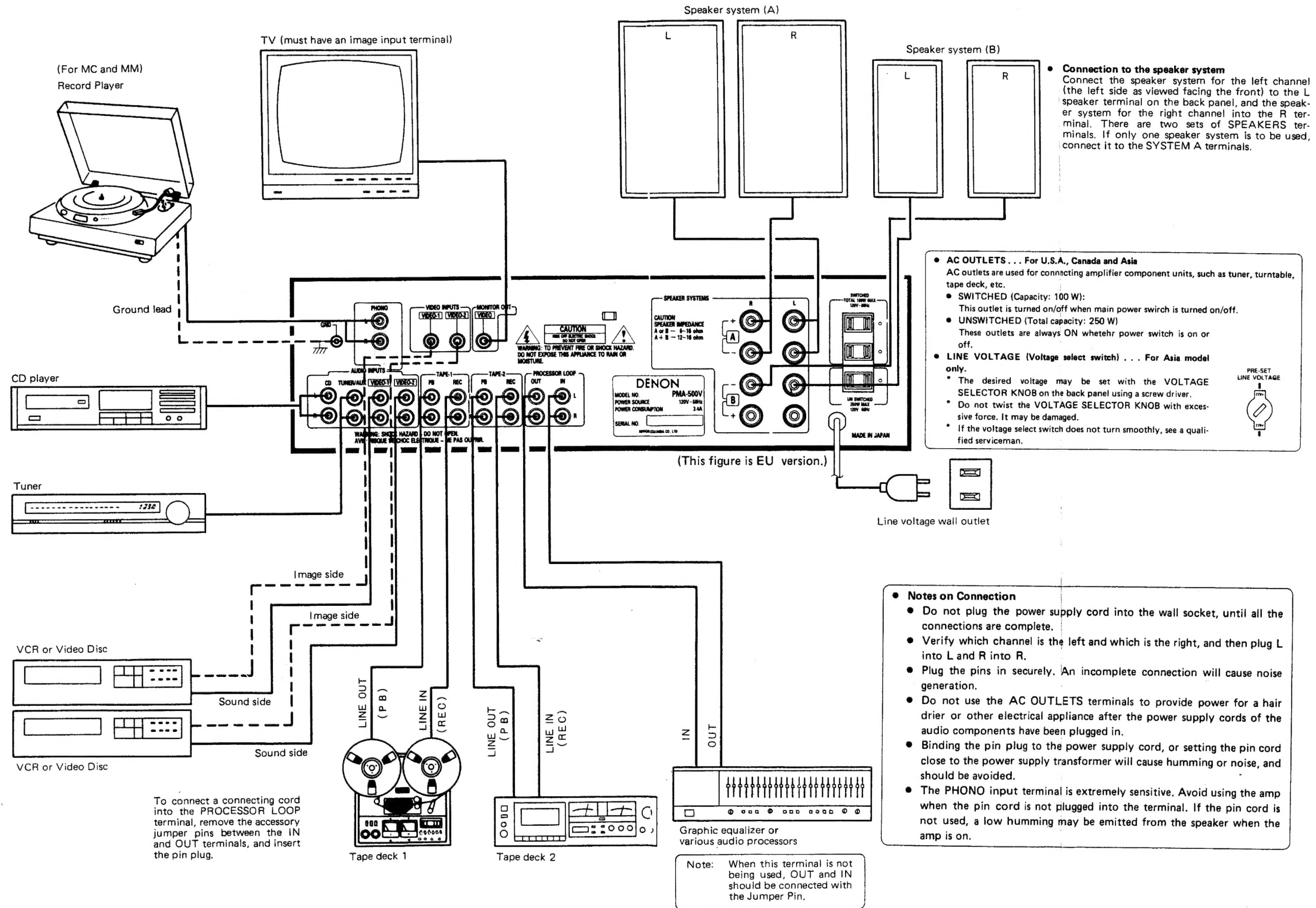
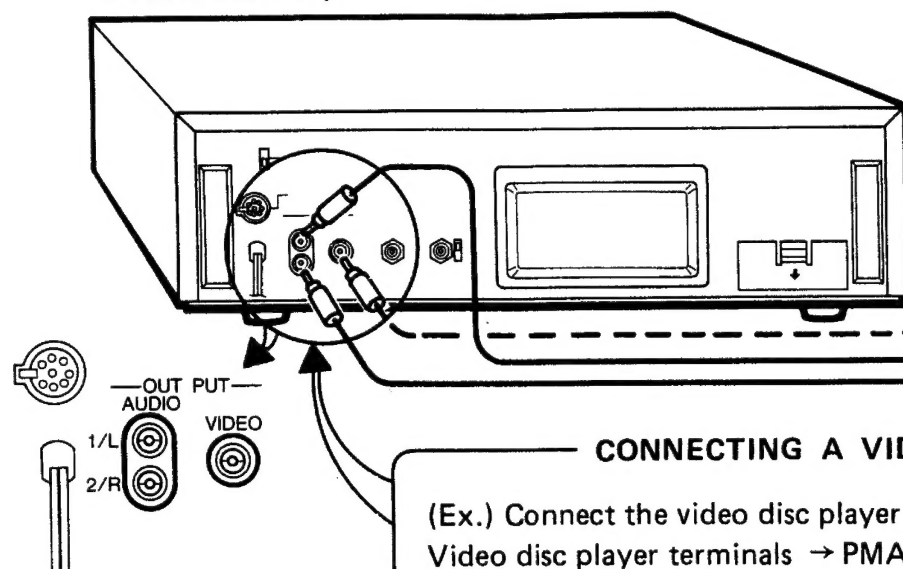


Fig. 5

● Connecting a video device

Connect the output terminals of the video device (OUTPUT) to the VIDEO terminals of the amp, using a pin plug cord.

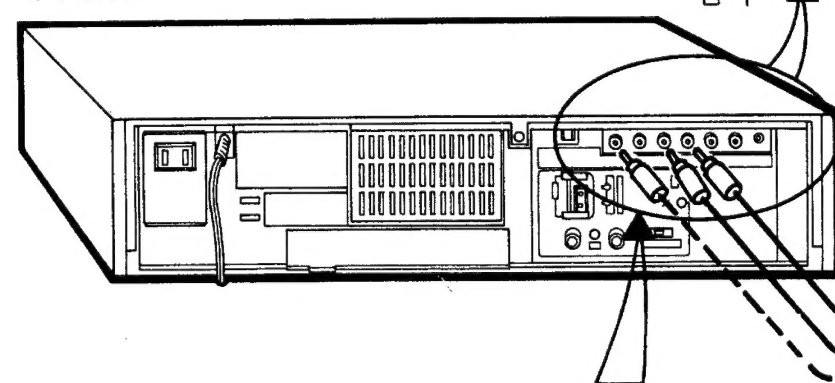
< Video Disc Player >



CONNECTING A VIDEO DISC PLAYER

(Ex.) Connect the video disc player to the VIDEO-1 terminal.  
Video disc player terminals → PMA-500V terminals  
VIDEO OUT (image) → VIDEO-1, VIDEO INPUT  
AUDIO OUT (sound) → VIDEO-1, AUDIO INPUT

< VCR >



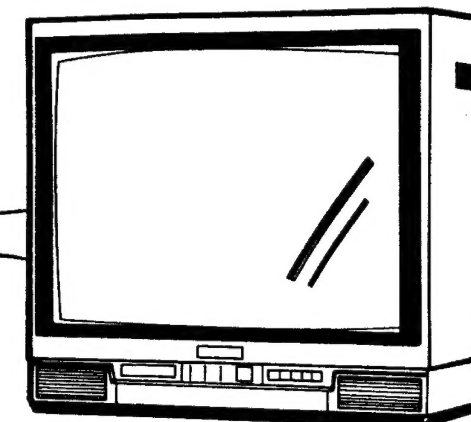
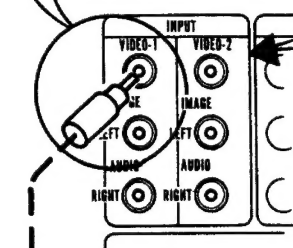
CONNECTING VCR

VCR terminals → PMA-500V terminals  
VIDEO OUT (image) → VIDEO-2, VIDEO INPUT  
AUDIO OUT (sound) → VIDEO-2, AUDIO INPUT  
(Ex.) Connect the VCR to the VIDEO-2 terminal

● CONNECTING A VIDEO DEVICE

< TV (must have image input terminal) >

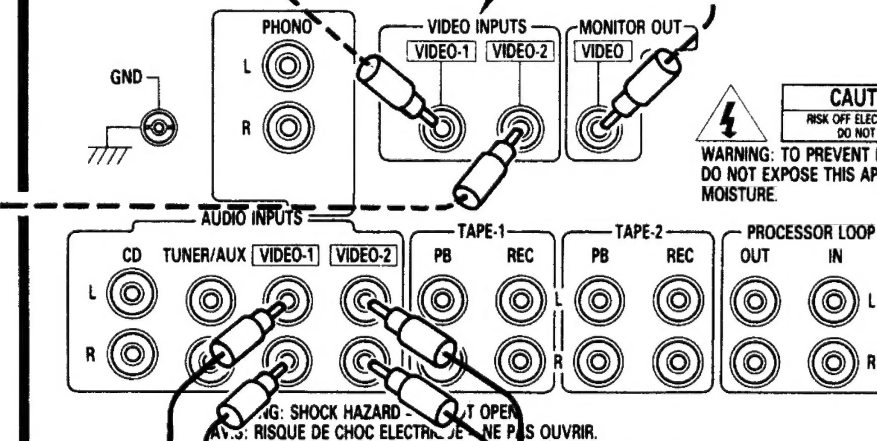
TV TERMINALS → PMA-500V TERMINALS  
Video image output terminal ← MONITOR OUT



VIDEO INPUT

The PMA-500V has a VIDEO selection function. VIDEO-1 is automatically used for all playback functions, unless the input selection switch is set to VIDEO-2.

Connect the image output of a video device such as a VCR to VIDEO-1 for simultaneous playback with another medium, such as a compact disc.



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN  
WARNING: TO PREVENT FIRE OR SHOCK HAZARD,  
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR  
MOISTURE.

**SPEAKER**  
**CAUTION**  
SPEAKER IMPE  
A or B — 6~  
A + B — 12~

**DENON**  
MODEL NO. PMA-500V  
POWER SOURCE 120V~  
POWER CONSUMPTION  
SERIAL NO. NIPPON COLUMBIA CO., LTD.

Fig. 6

## BLOCK DIAGRAM

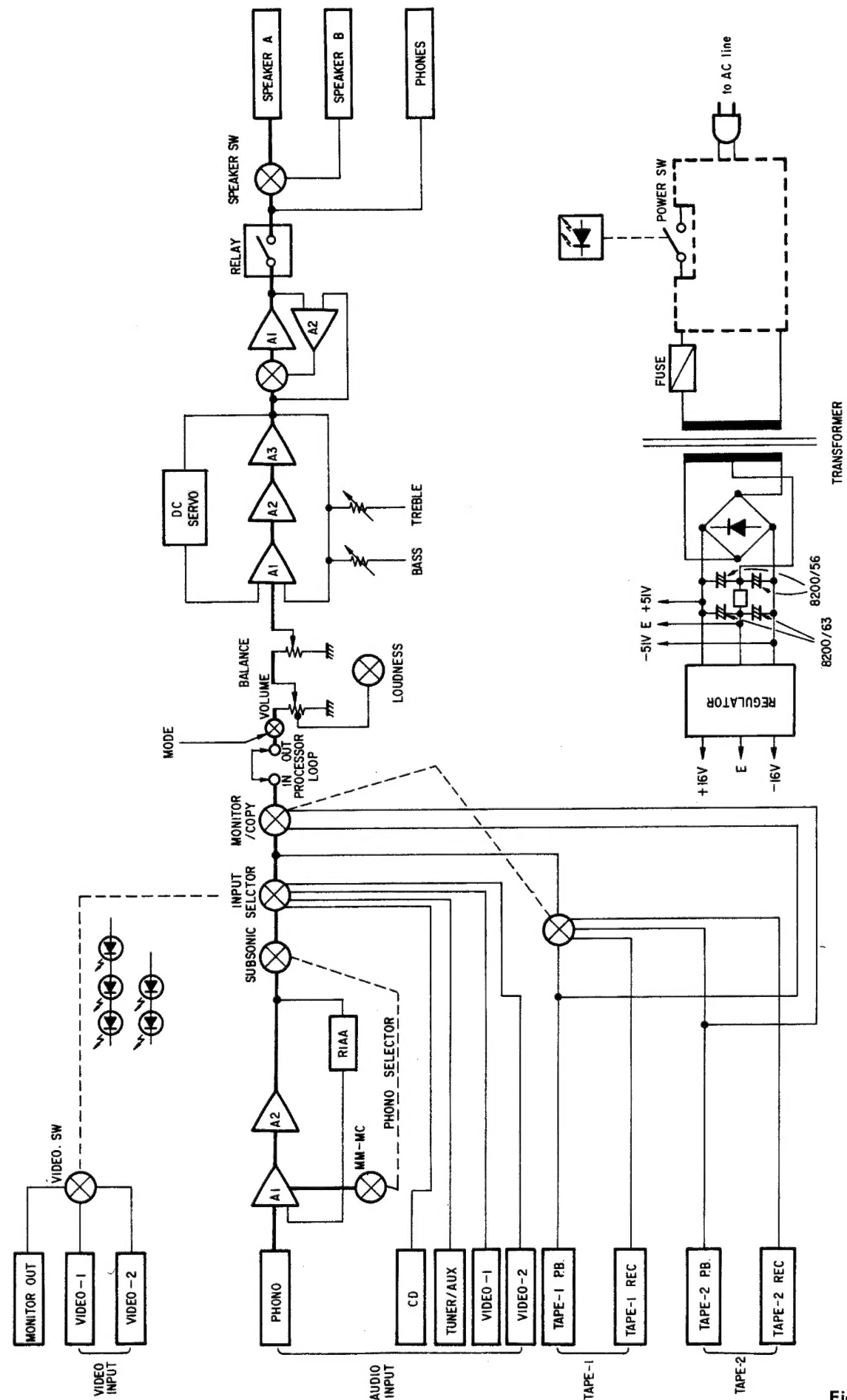


Fig. 7

## METHOD OF ADJUSTMENTS

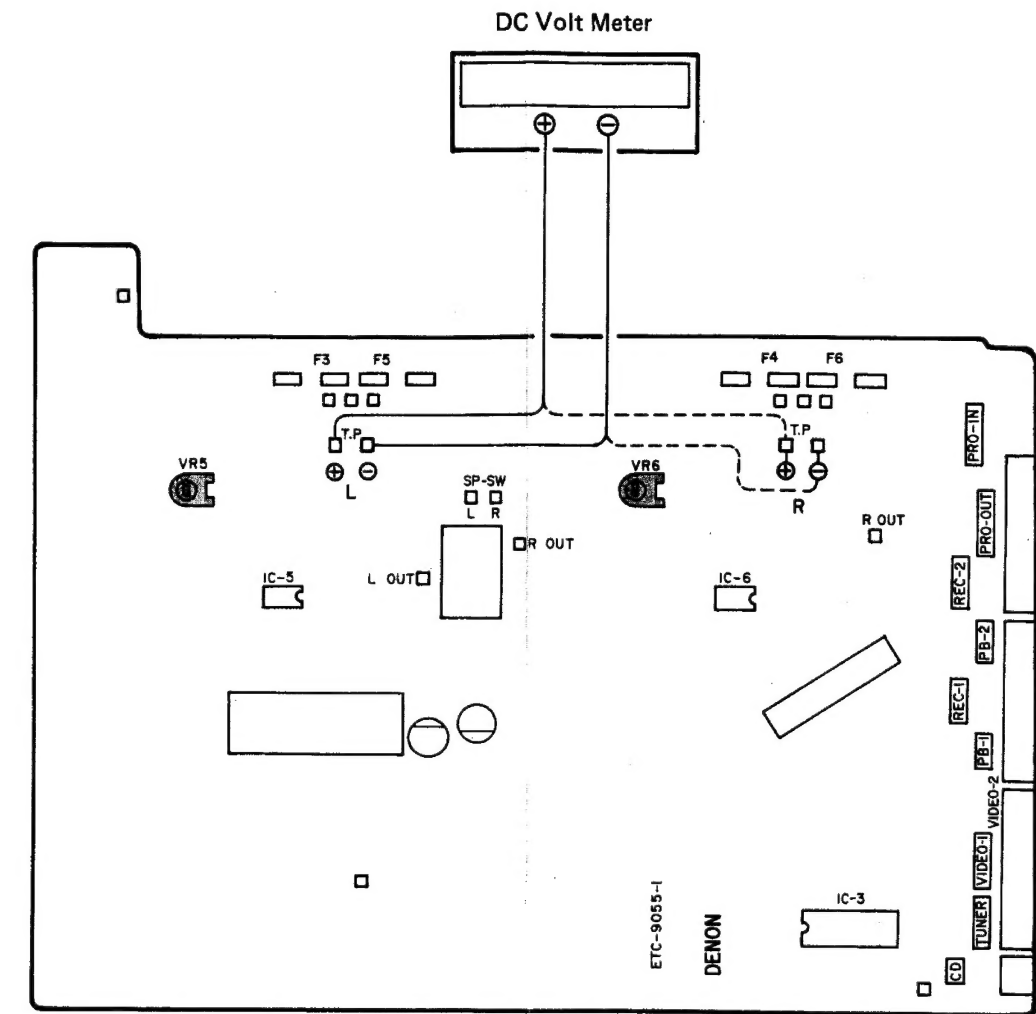




Fig. 8


## IDLING CURRENT (Fig. 8)

## • Setup

1. Lay the unit at an ordinary position away from a direct current from a cooler or fan. Do the adjustment at a temperature between 15°C and 30°C.
2. Set controls as follows.
 

POWER SWITCH	→ off (  )
VOLUME CONTROL	→ fully counterclockwise. (  min)
SPEAKER Terminals	→ open: do not connect the speakers, dummy load etc.

## • Adjustment

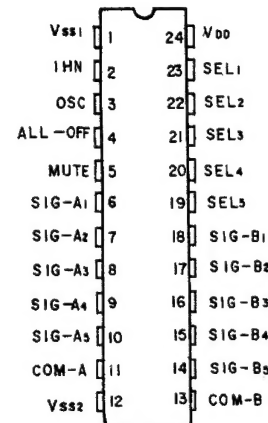
1. Remove Top cover. And then connect DC Voltmeter to Test points of ETC-9055-1 (INPUT & POWER Unit).
2. Connect Power cord to AC outlet, and turn Power Switch "on" (  ). Within 10 seconds turn VR5 (Lch) and VR6 (Rch) clockwise so that the DC voltmeter reads  $1.5 \pm 0.1$  mVDC
3. Then after 3 minutes warmup adjust VR5 and VR6 so that the DC Voltmeter reads  $4 \pm 0.5$  mV

## SEMICONDUCTORS

## • IC's

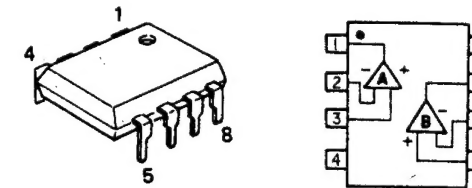
TC9152P (Toshiba)

## FUNCTION OF EACH TERMINAL



TERMINAL NO.	SYMBOL	FUNCTION	REMARKS
2	INH	Inhibit input terminal. Normal operation at "H" level, inhibit operation at "L" level.	
3	OSC	C.R connecting terminal for oscillator. With this oscillation frequency, muting time and switching time of analog will be set.	
4	ALL-OFF	Specified OFF input terminal of all analog switches. Applying "H" level to turn off all analog switches.	
5	MUTE	Output terminal of muting signal. By receiving of "H" level at select input terminals (SEL-1 ~ SEL-5), this terminal becomes "H" level for settled time and within this time analog switch will shift.	
23 22 21 20 19	SEL-1 SEL-2 SEL-3 SEL-4 SEL-5	Select input terminals for respective analog switches. Turn SEL-1 ~ SEL-5 terminals to "H" level to turn on respective analog switches. SEL-1 ~ SEL-5 are all reciprocal reset. These terminals are in conjunction with driver output I/O terminals.	
6/18	SIG-A <sub>1</sub> SIG-B <sub>1</sub>	Signal input terminal 1. Select SEL-1 to turn on analog switch 1 and this terminal will conduct to COM terminal.	
7/17	SIG-A <sub>2</sub> SIG-B <sub>2</sub>	Signal input terminal 2. Select SEL-2 to turn on analog switch 2 and this terminal will conduct to COM terminal.	
8/16	SIG-A <sub>3</sub> SIG-B <sub>3</sub>	Signal input terminal 3. Select SEL-3 to turn on analog switch 3 and this terminal will conduct to COM terminal.	
9/15	SIG-A <sub>4</sub> SIG-B <sub>4</sub>	Signal input terminal 4. Select SEL-4 to turn on analog switch 4 and this terminal will conduct to COM terminal.	
10/14	SIG-A <sub>5</sub> SIG-B <sub>5</sub>	Signal input terminal 5. Select SEL-5 to turn on analog switch 5 and this terminal will conduct to COM terminal.	
11/13	COM-A COM-B	Common terminal for analog switches.	
24 1 12	VDD Vss1 Vss2	Power supply voltage applying terminal. For control system VDD-Vss1. For analog switch system VDD-Vss2.	

M5218P (Mitsubishi)  
M5220P (Mitsubishi)  
LA6458DF (Sanyo)  
NJM2043DD (JRC)



## • TRANSISTORS (Including FET)

2SA1015(Y)  
2SC1815(BL)  
2SC2878(A/B)  
2SA988(E/F)  
2SC1841(E/F)

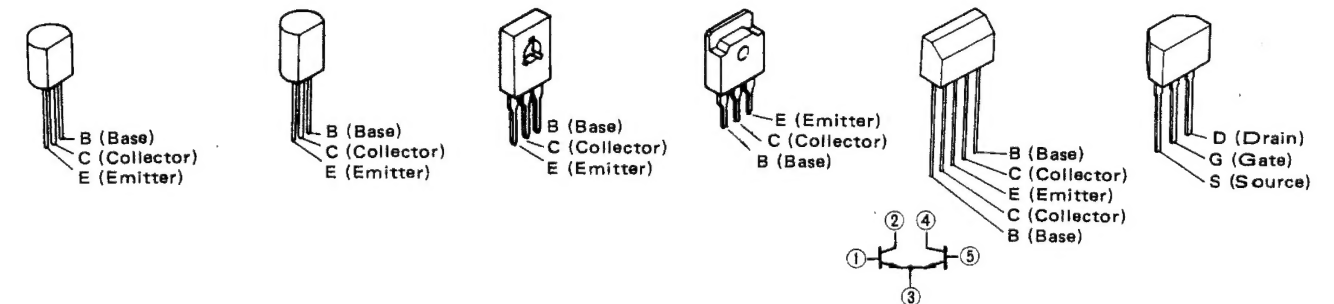
2SD667A(C)  
2SB647A(C)

2SA1358(Y/O)  
(Green)  
2SC3421(Y/O)  
(Black)

2SA1106(O/Y)  
2SC2581(O/Y)

2SC2259(G)

FET  
2SK381(C)/(D)



## • DIODES (Including LED)

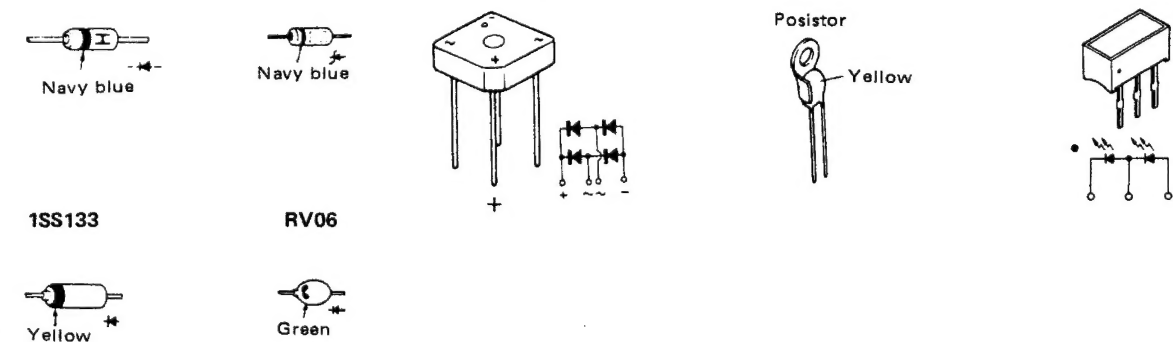
1S2076A

HZ7B-3  
HZ15-2  
HZ18-2  
HZ24-2

RB602LF-F

PTH487A01BD222TS

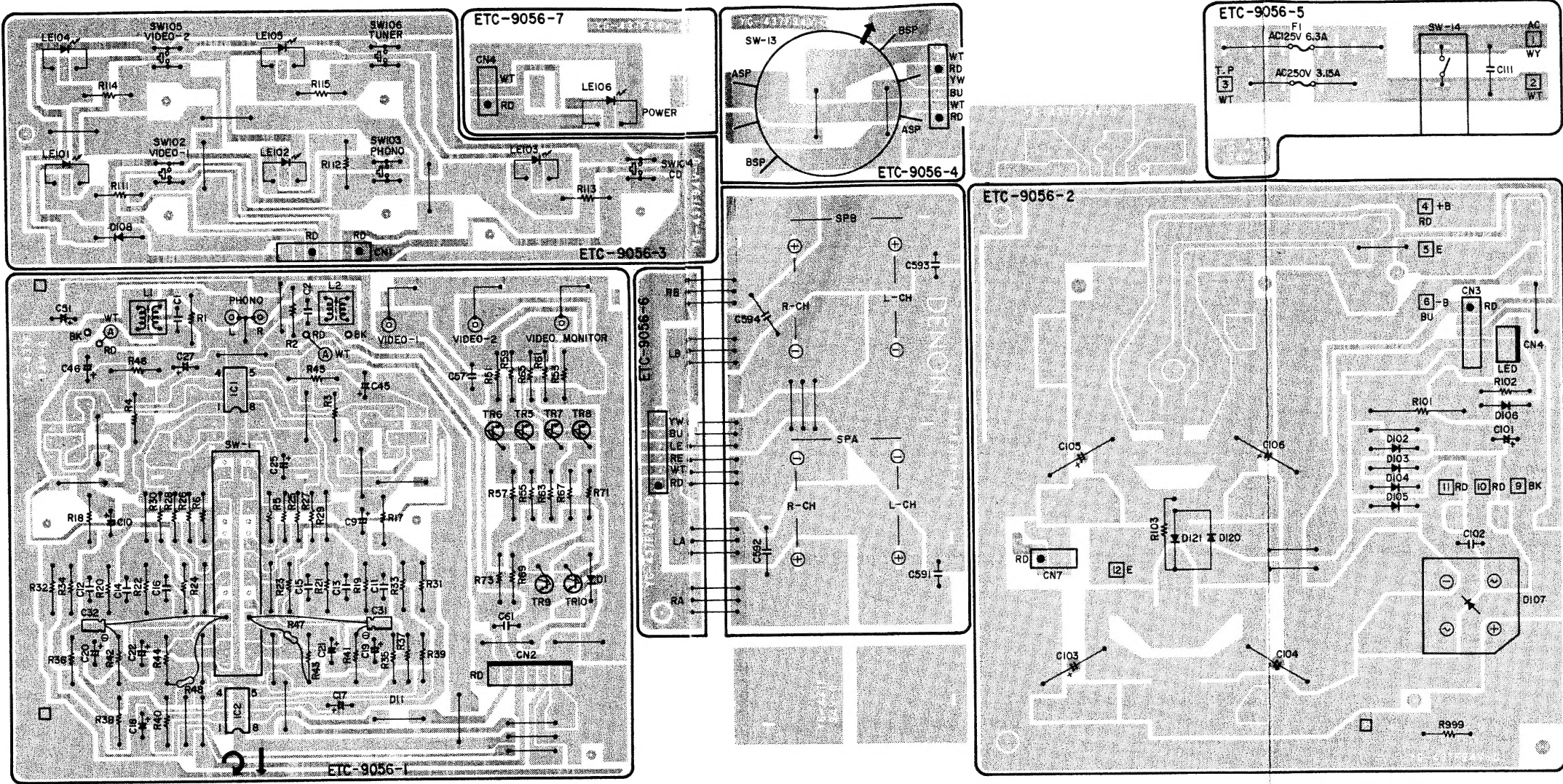
LED  
LD-001VR (Red)  
LD-001DU (Orange)





PRINTED WIRING BOARD PATTERNS AND PARTS LIST

ETC9056B EQ. & PS UNIT



ETC9056B EQ. & PS UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC001	2650037007	NJM-2043DD	IC (JRC)
IC002	2630229013	LA-6458DF	IC (SANYO)
TR005	2710102005	2SA1015(Y)	TRANSISTOR
TR006	2730198015	2SC1815(BL)	TRANSISTOR
TR007	2710102005	2SA1015(Y)	TRANSISTOR
TR008	2730198015	2SC1815(BL)	TRANSISTOR
~010			
D001	2760220021	HZ24-2	ZENER
D102	2760049011	1S2076A	DIODE
~105			
D106	2760249002	HZ18-2	ZENER
D107	2760409004	RB602F-LFD	DIODE
D108	2760249002	HZ18-2	ZENER
D120, 121	2760237001	RV06	DIODE
LE101	3939310004	LD-001VR	LED (INPUT)
~105			
LE106	3939310017	LD-001DU	LED (POWER)
RESISTORS (not included Carbon Film ±5%, 1/4W Type)			
AR101	2440042024	1.2k ohm ±5% 1W	METAL OXIDE FILM (NBF)
AR103	2440058021	0.47 ohm ±5% 2W	METAL OXIDE FILM (NBF)

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C001	2533631009	150pF	±5%	50V	CERAMIC
C001	2533627000	100pF	±5%	50V	CERAMIC
C002	2533631009	150pF	±5%	50V	CERAMIC
C002	2533627000	100pF	±5%	50V	CERAMIC
C009, 010	2544161021	100μF	±20%	6.3V	ELECTROLYTIC
C011, 012	2551140048	0.068μF	±5%	50V	PLASTIC FILM
C013, 014	2551121054	0.018μF	±5%	50V	PLASTIC FILM
C015, 016	2533643000	470pF	±5%	50V	CERAMIC
C017, 018	2544161021	100μF	±20%	6.3V	ELECTROLYTIC
C019, 020	2544147003	2.2μF		50V	ELECTROLYTIC
C021, 022	2544146004	1μF		50V	ELECTROLYTIC
C025	2544146004	1μF		50V	ELECTROLYTIC
C027	2544146004	1μF		50V	ELECTROLYTIC
C031, 032	2544143007	33μF		35V	ELECTROLYTIC
C045, 046	2544132005	10μF		16V	ELECTROLYTIC
C051	2544146004	1μF		50V	ELECTROLYTIC

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
C057	2531024003	0.01 $\mu$ F +80, -20% 50V	CERAMIC
C061	2531024003	0.01 $\mu$ F +80, -20% 50V	CERAMIC
C101	2544150003	10 $\mu$ F 50V	ELECTROLYTIC
C102	2531052004	4700pF +100, -0% 500V	CERAMIC
C103	2544216015	6800 $\mu$ F $\pm 20\%$ 63V	ELECTROLYTIC
~106			
AC111	2538010007	0.01 $\mu$ F +100, -0% 400V (AC)	CERAMIC
C591 ~594	2531023004	4700pF +80, -20% 50V	CERAMIC
SWITCHES			
SW001	2129521002	SLIDE SW REMOTE (PHONO)	
SW013	2129522001	ROTARY SWITCH (SP)	
SW014	2124409006	POWER SWITCH	
SW102 ~106	2124407008	TACT SWITCH (INPUT)	
OTHER PARTS			Q'ty
	2229056105	P.W. BOARD	1
	2090008120	JUMPER WIRE P=10mm	56
	EP-5667H1	TERMINAL PIN L=21mm	12

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
L001, 002	2359003002	FTZ CHOKE COIL	2
	2020022008	FUSE HOLDER (AC LINE FOOL)	2
4F001	2061015074	FUSE 3.15A (AC LINE)	1
	2050274004	2P CONNECTOR BASE	1
	2050240009	3P CONNECTOR BASE	1
	2050144008	8P TERMINAL	1
CN001	2042052098	7P NH CONNECTOR CORD (TACT SW & LED)	1
CN001	2050243077	7P WIRE HOLDER (TACT SW & LED)	1
CN002	2050190078	7P NH CONNECTOR BASE (EQ & VIDEO SW)	1
CN003	2038123067	5P NH CONNECTOR CORD (+ - B & MUTING)	1
CN004	2050190036	3P NH CONNECTOR BASE	1
CN004	2034185012	3P CONNECTOR CORD (POWER LED)	1
CN004	2050185038	3P WIRE HILDER (POWER LED)	1
	4450057010	CORD CLIP	2
	2050185054	5P WIRE HOLDER (+ - B & MUTING)	1
	2050185067	6P WIRE HOLDER (SP CORD)	2



**E1, EP1 for Asia ETC9056D**  
(Same as ETC9056B (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC001	2630317006	M-5220P (MITSUBISHI) IC	CHANGE
RESISTORS			
R001, 002	2412044005	10 ohm ±5% 1/4W CARBON	CHANGE
CAPACITORS			
C001, 002	2533627000	100pF ±5% 50V CERAMIC	CHANGE
C591 ~594	2531023004	4700pF +80,-20% 50V CERAMIC	DELETE
OTHER PARTS			
L001, 002	2359003002	FTZ CHOKE COIL	DELETE
	EP-5870	FUSE HOLDER (2)	CHANGE
AF001	2061017001	FUSE 6.3A (1)	CHANGE

**EK for U.K. and EA for Australia ETC9056F**  
(Same as ETC9056B (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC001	2630317006	M-5220P (MITSUBISHI) IC	CHANGE
RESISTORS			
R001, 002	2412044005	10 ohm ±5% 1/4W CARBON	CHANGE
CAPACITORS			
C001, 002	2533627000	100pF ±5% 50V CERAMIC	CHANGE
C591 ~594	2531023004	4700pF +80,-20% 50V CERAMIC	DELETE
OTHER PARTS			
L001, 002	2359003002	FTZ CHOKE COIL	DELETE

**EU for U.S.A. ETC9056E**  
(Same as ETC9056B (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC001	2630317006	M-5220P (MITSUBISHI) IC	CHANGE
RESISTORS			
R001, 002	2412044005	10 ohm ±5% 1/4W CARBON	CHANGE
CAPACITORS			
C001, 002	2533627000	100pF ±5% 50V CERAMIC	DELETE
C017, 018	2544088010	100μF 16V ELECTROLYTIC	CHANGE
C025	2544203002	1μF 160V ELECTROLYTIC	CHANGE
C101	2544180028	10μF 63V ELECTROLYTIC	CHANGE
C591 ~594	2531023004	4700pF +80,-20% 50V CERAMIC	DELETE
OTHER PARTS			
L001, 002	2359003002	FTZ CHOKE COIL	DELETE
AF001	2061046001	FUSE 6.3AUL 2: 20mm	CHANGE

**EC for Canada ETC9056C**  
(Same as ETC9056B (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC001	2630317006	M-5220P (MITSUBISHI) IC	CHANGE
RESISTORS			
R001, 002	2412044005	10 ohm ±5% 1/4W CARBON	CHANGE
CAPACITORS			
C001, 002	2533627000	100pF ±5% 50V CERAMIC	DELETE
C017, 018	2544088010	100μF 16V ELECTROLYTIC	CHANGE
C025	2544203002	1μF 160V ELECTROLYTIC	CHANGE
C101	2544180028	10μF 63V ELECTROLYTIC	CHANGE
C591 ~594	2531023004	4700pF +80,—20% 50V CERAMIC	DELETE
OTHER PARTS			
L001, 002	2359003002	FTZ CHOKE COIL	DELETE
AF001	2061046001	FUSE 6.3AUL 2: 20mm	CHANGE
ASW-14	2129525008	POWER SWITCH	CHANGE

**ETC9055B INPUT & POWER UNIT PARTS LIST**

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
IC003	2620581004	TC9152P	IC (TOSHIBA)
IC005, 006	2630257001	M-5218P	IC (MITSUBISHI)
TR151	2730198015	2SC1815(BL)	TRANSISTOR
TR152	2710102005	2SA1015(Y)	TRANSISTOR
TR153	2730198015	2SC1815(BL)	TRANSISTOR
TR155, 156	2730253015	2SC2878(A/B)	TRANSISTOR
TR201 ~203	2730198015	2SC1815(BL)	TRANSISTOR
TR204	2710102005	2SA1015(Y)	TRANSISTOR
TR205	2730253015	2SC2878(A/B)	TRANSISTOR
TR206, 207	2730198015	2SC1815(BL)	TRANSISTOR
TR208	2710102005	2SA1015(Y)	TRANSISTOR
TR209	2740060007	2SD667A(C)	TRANSISTOR
TR210	2720053005	2SB647A(C)	TRANSISTOR
TR211, 212	2750043014	2SK381(C)/(D)	FET
TR401, 402	2730191009	2SC2259(G)	TRANSISTOR
TR409 ~414	2710131021	2SA988(E/F)	TRANSISTOR
TR415, 416	2730235020	2SC1841(E/F)	TRANSISTOR
TR417, 418	2710131021	2SA988(E/F)	TRANSISTOR
TR419, 420	2730235020	2SC1841(E/F)	TRANSISTOR
TR501, 502	2730198015	2SC1815(BL)	TRANSISTOR
TR503, 504	2730323000	2SC3421(O/Y)	TRANSISTOR
TR505, 506	2710195009	2SA1358(O/Y)	TRANSISTOR
D152, 153	2760401002	1SS133	DIODE
D171 ~173	2760401002	1SS133	DIODE
D201	2760049011	1S2076A	DIODE
D202	2760249002	HZ18-2	ZENER
D208	2760049011	1S2076A	DIODE
D401 ~406	2760401002	1SS133	DIODE
D501 ~504	2760253001	HZ15-2	ZENER
D507 ~510	2760254000	HZ7B-3	ZENER
D527 ~530	2760401002	1SS133	DIODE
D531, 532	2760049011	1S2076A	DIODE
RESISTORS (not included Carbon Film ±5%, 1/4W Type)			
Δ R201, 202	2440038025	560 ohm ±5% 1W	METAL OXIDE FILM (NBF)
Δ R207	2412321045	220 ohm ±5% 1/4W	CARBON (NBF)
Δ R413 ~416	2412321029	1.5k ohm ±5% 1/4W	CARBON (NBF)
Δ R423, 424	2412377934	91 ohm ±5% 1/4W	CARBON (NBS)
Δ R429 ~432	2412378904	180 ohm ±5% 1/4W	CARBON (NBS)
Δ R433	2412376964	47 ohm ±5% 1/4W	CARBON (NBS)
Δ R434	2412321061	47 ohm ±5% 1/4W	CARBON (NBF)
Δ R435 ~438	2412375981	22 ohm ±5% 1/4W	CARBON (NBS)
Δ R501, 502	2440049027	4.7k ohm ±5% 1W	METAL OXIDE FILM (NBF)
Δ R505, 506	2440049027	4.7k ohm ±5% 1W	METAL OXIDE FILM (NBF)
Δ R549, 550	2412321045	220 ohm ±5% 1/4W	CARBON (NBF)

**Same as ETC9055F for U.K. and Australia**

Ref. No.	Part No.	Part Name & Descriptions	
Δ R567 ~574	2442013080	0.22 ohm ±5% 1W	METAL OXIDE FILM (NBF)
Δ R585, 586	2440021029	22 ohm ±5% 1W	METAL OXIDE FILM (NBF)
Δ R587, 588	2440017020	10 ohm ±5% 1W	METAL OXIDE FILM (NBF)
Δ R591, 592	2440030023	120 ohm ±5% 1W	METAL OXIDE FILM (NBF)
VR001	2119018004	100k ohm	VARIABLE RESISTOR (MAIN VR)
VR002	2119021004	250k ohm	VARIABLE RESISTOR (BALANCE VR)
VR003	2119022016	250k ohm	VARIABLE RESISTOR (BASS VR)
VR004	2119022003	50k ohm	VARIABLE RESISTOR (TREBLE VR)
VR005, 006	2116000099	2k ohm	SEMIFIXED RESISTOR (BIAS VR)
<b>CAPACITORS</b>			
C055	2544146004	1μF 50V	ELECTROLYTIC
C059	2544146004	1μF 50V	ELECTROLYTIC
C151	2554199986	0.001μF ±5% 50V	PLASTIC FILM
C155	2544164031	220μF ±20% 25V	ELECTROLYTIC
C157	2531024003	0.01μF +80,-20% 50V	CERAMIC
C171	2544146004	1μF 50V	ELECTROLYTIC
C201, 202	2531024003	0.01μF +80,-20% 50V	CERAMIC
C203	2533627000	100pF ±5% 50V	CERAMIC
C204	2544141009	10μF 35V	ELECTROLYTIC
C205	2544127007	220μF 6.3V	ELECTROLYTIC
C206	2544005006	330μF 6.3V	ELECTROLYTIC
C207	2544132005	10μF 16V	ELECTROLYTIC
C301, 302	2531004007	0.001μF ±10% 50V	CERAMIC
C303, 304	2551140051	0.082μF ±5% 50V	PLASTIC FILM
C305, 306	2544089006	1μF 50V	ELECTROLYTIC
C401, 402	2533627000	100pF ±5% 50V	CERAMIC
C403, 404	2533643000	470pF ±5% 50V	CERAMIC
C405, 406	2531006005	2200pF ±10% 50V	CERAMIC
C409, 410	2531024003	0.01μF +80,-20% 50V	CERAMIC
C411, 412	2534355009	5pF ±0.25pF 500V	CERAMIC
C413 ~416	2533627000	100pF ±5% 50V	CERAMIC
C417, 418	2544132005	10μF 16V	ELECTROLYTIC
C419, 420	2533617007	39pF ±5% 50V	CERAMIC
C421, 422	2533599002	6pF ±0.5pF 50V	CERAMIC
C427, 428	2544059078	2.2μF 63V	ELECTROLYTIC
C429, 430	2544127007	220μF 6.3V	ELECTROLYTIC
C451, 452	2551074004	0.015μF ±10% 50V	PLASTIC FILM
C453, 454	2551140064	0.12μF ±5% 50V	PLASTIC FILM
C457, 458	2551070008	0.0068μF ±10% 50V	PLASTIC FILM
C459, 460	2551061004	0.0012μF ±10% 50V	PLASTIC FILM
C461, 462	2551135095	0.056μF ±5% 50V	PLASTIC FILM
C465, 466	2533633007	180pF ±5% 50V	CERAMIC
C501 ~504	2544138009	47μF 25V	ELECTROLYTIC

Ref. No.	Part No.	Part Name & Descriptions	
C505, 506	2533603008	10pF ±0.5pF 50V CERAMIC	
C507 ~510	2533639001	330pF ±5% 50V CERAMIC	
C511 ~514	2544146004	1μF 50V ELECTROLYTIC	
C531 ~534	2534285001	47pF ±5% 500V CERAMIC	
C539, 540	2551072006	0.01μF ±10% 50V PLASTIC FILM	
C541, 542	2551076002	0.022μF ±10% 50V PLASTIC FILM	
C543 ~546	2544059036	4.7μF 63V ELECTROLYTIC	
SWITCHES & RELAY			
SW007	2124254002	SLIDE SW (REMOTE, T. MONI)	
SW010, 011	2129523000	2P PUSH SWITCH (MODE & LOUD)	
RL001	2140037009	RELAY (SPEAKER)	
OTHER PARTS			Q'ty
J701 ~703	2229055300	P.W. BOARD	1
	2090008146	JUMPER WIRE P=5mm	22
	2090008120	JUMPER WIRE P=10mm	199
	2090008104	JUMPER P=15mm	3
J705	2090008104	JUMPER P=15mm	1
JO10	2090008159	JUMPER	1
J501, 502	EP-5667H1	TERMINAL PIN L=21mm	12
	2359001004	INDUCTOR (1μH)	2
	4140240001	EARTH PLATE (GND)	1
	2048191005	HEADPHONE JACK	1
CN001	2020022008	FUSE HOLDER (+ - B F003~006)	8
	2050274004	2P CONNECTOR BASE (CD)	1
	2050152003	6P CONNECTOR BASE (CD)	3
	2050190036	3P NH CONNECTOR BASE (POWER INPUT)	1
CN002	2050190078	7P NH CONNECTOR BASE (TACT SW & LED)	1
CN002	2050185070	7P WIRE HOLDER	1
CN002	2042052014	7P CONNECTOR CORD (EQ & VIDEO SW)	1
CN003	2050190052	5P NH CONNECTOR BASE	1
W003	2034200010	3P CONNECTOR CORD	1
F003 ~006	2050185038	3P WIRE HILDER	11
	4450033005	WIRE CLAMP BAND	1
	2061040036	FUSE 5A F	4
	5139119032	FUSE LABEL (F5A)	2

**E1, EP1 for Asia ETC9055D**  
 (Same as ETC9055B (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	
OTHER PARTS			
F003 ~006	2061041035	FUSE (F) 6.3A (4)	CHANGE
	5139119032	FUSE LABEL (F5A) (2)	DELETE

**EC for Canada ETC9055C**  
 (Same as ETC9055B (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions		
SEMICONDUCTORS				
D523 ~526	2760049011	1S2076A	DIODE	DELETE
RESISTORS				
AR221, 222	2412369010	1 ohm	±5% 1/4W CARBON (NBF)	CHANGE
AR493, 494	2412369010	1 ohm	±5% 1/4W CARBON (NBF)	CHANGE
CAPACITORS				
C204	2544180028	10μF	63V ELECTROLYTIC	CHANGE
C429, 430	2544088010	100μF	16V ELECTROLYTIC	CHANGE
C543 ~546	2544203002	1μF	160V ELECTROLYTIC	CHANGE
OTHER PARTS				
F003 ~006	2061046001	FUSE 6.3AUL (ℓ: 20mm) (4)	CHANGE	
	5139119032	FUSE LABEL (F5A) (2)	DELETE	
	5139134004	FUSE LABEL (1)	ADD	

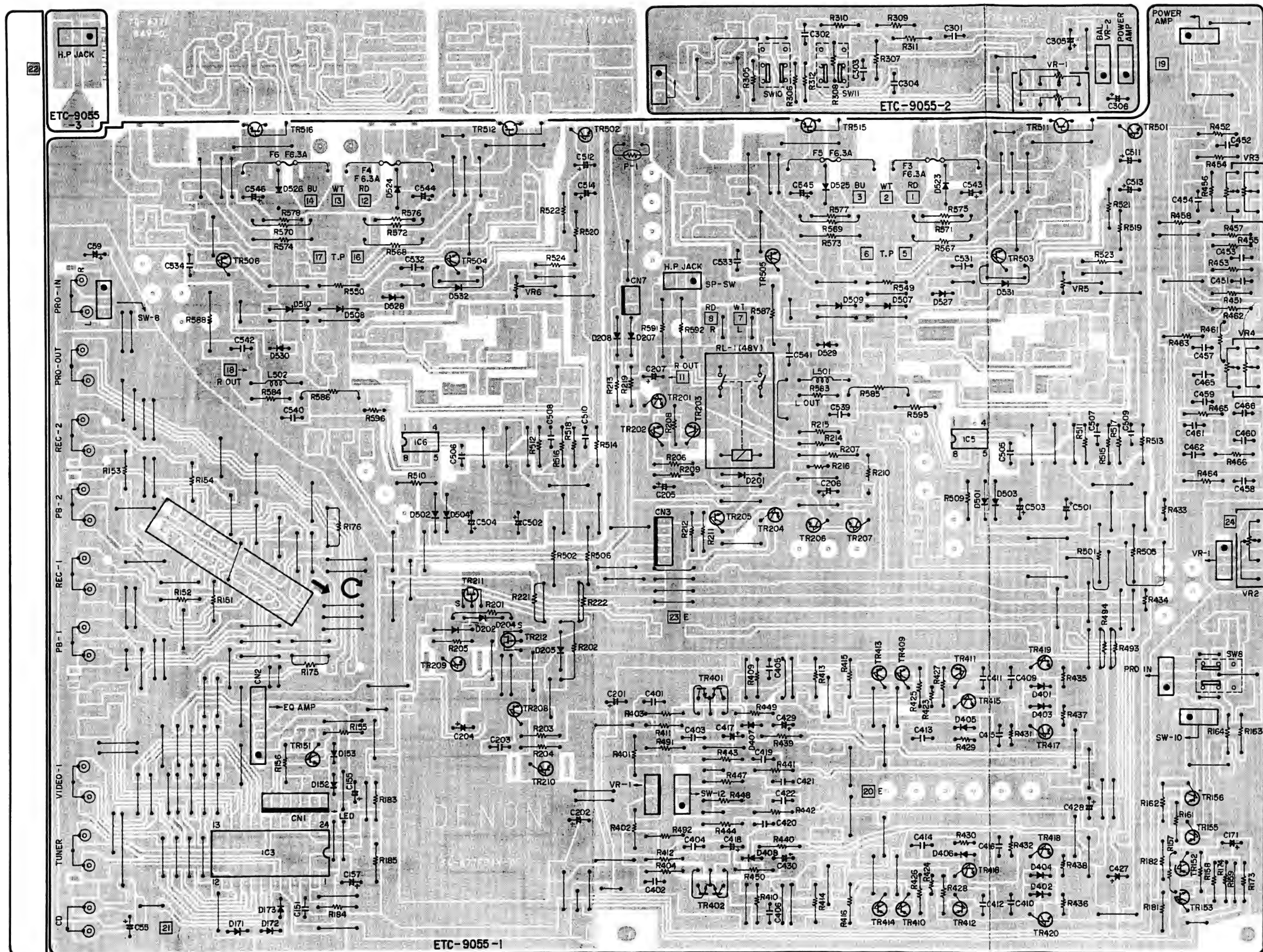
**EU for U.S.A. ETC9055E**  
 (Same as ETC9055B (for E2) except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	
SEMICONDUCTORS			
D523 ~526	2760049011	1S2076A	DIODE DELETE
RESISTORS			
ΔR221, 222	2412369010	1 ohm ±5% 1/4W CARBON (NBF)	CHANGE
ΔR493, 494	2412369010	1 ohm ±5% 1/4W CARBON (NBF)	CHANGE
CAPACITORS			
C204	2544180028	10μF 63V ELECTROLYTIC	CHANGE
C429, 430	2544088010	100μF 16V ELECTROLYTIC	CHANGE
C543 ~546	2544203002	1μF 160V ELECTROLYTIC	CHANGE
OTHER PARTS			
F003 ~006	2061046001	FUSE 6.3AUL (ℓ: 20mm) (4)	CHANGE
	5139119032	FUSE LABEL (F5A) (2)	DELETE
	5139134004	FUSE LABEL (1)	ADD

**EK for U.K. and EA for Australia: ETC9055F**  
 (Same as ETC9055B (for E2)).

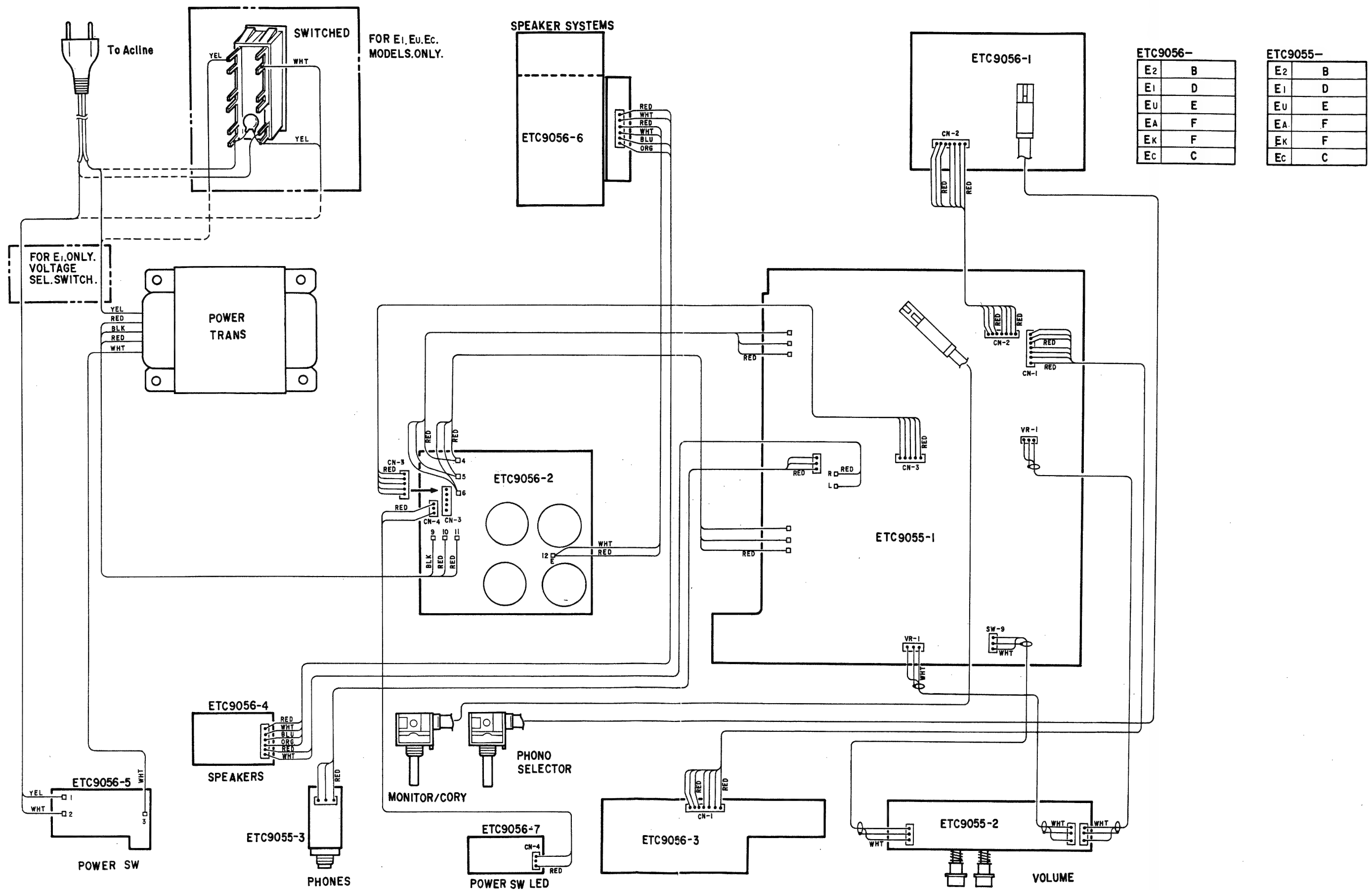


## ETC9055B INPUT &amp; POWER UNIT



## WIRING DIAGRAM

(This figure is specifications of E2.)





## SCHEMATIC DIAGRAM

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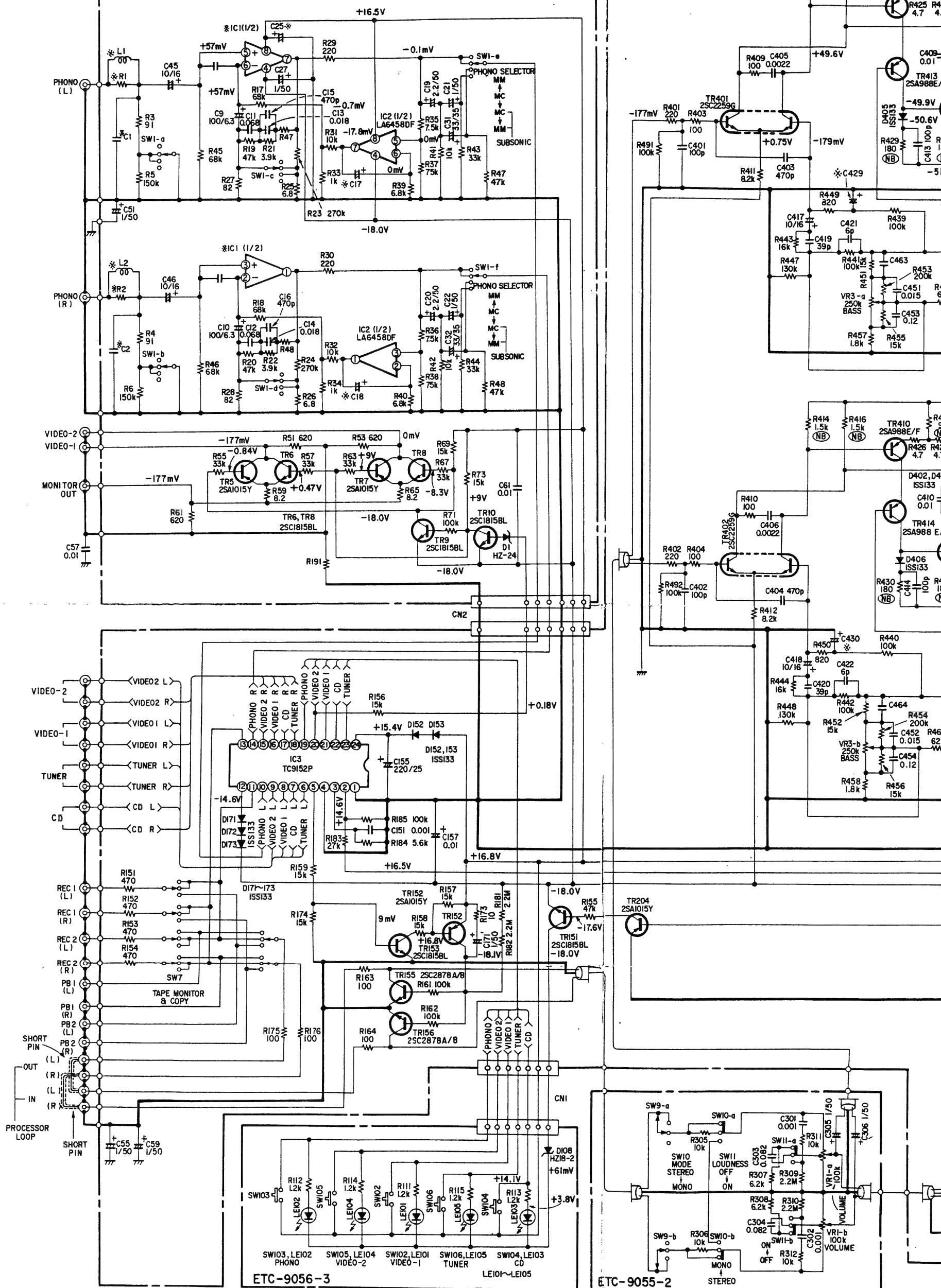
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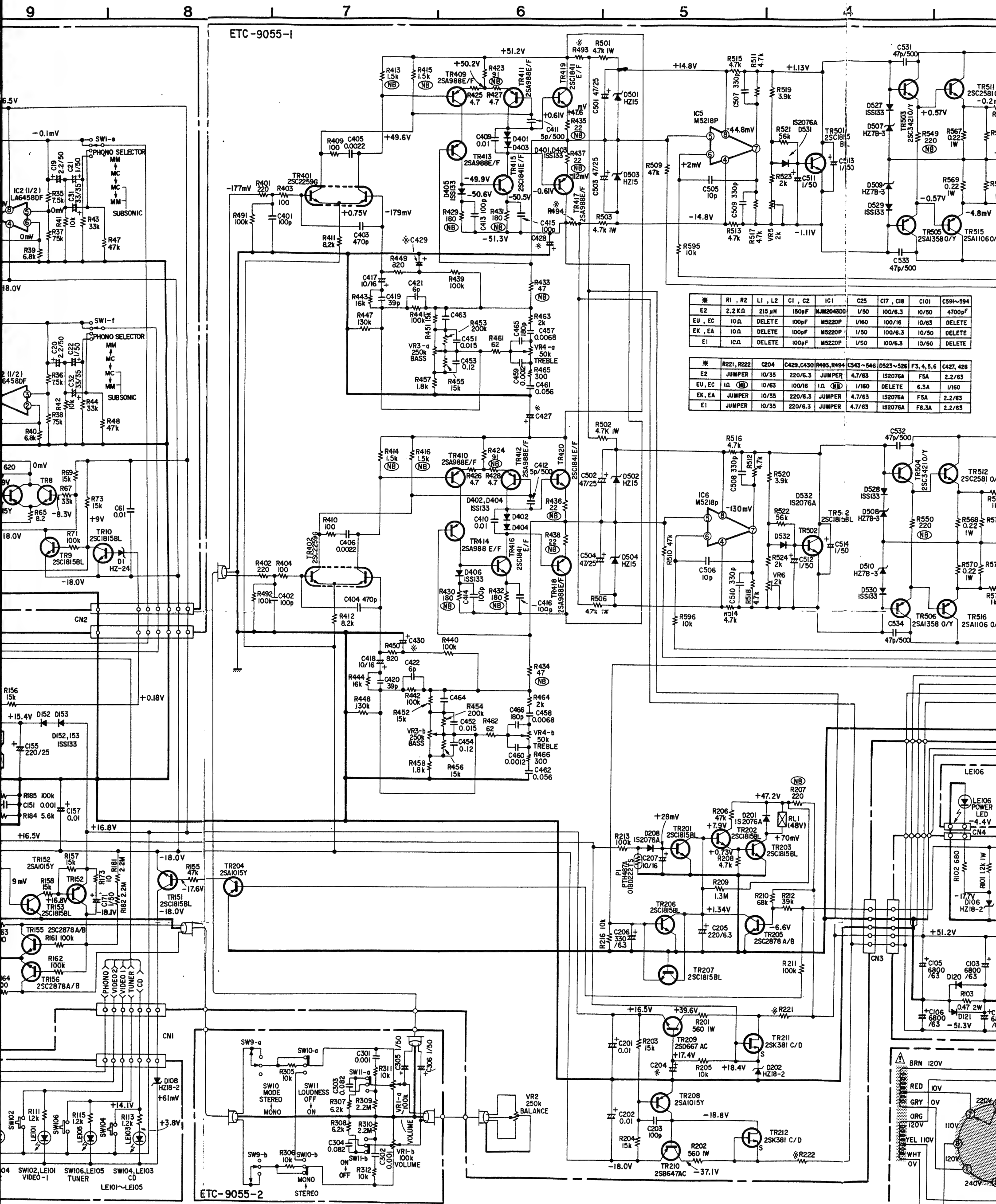
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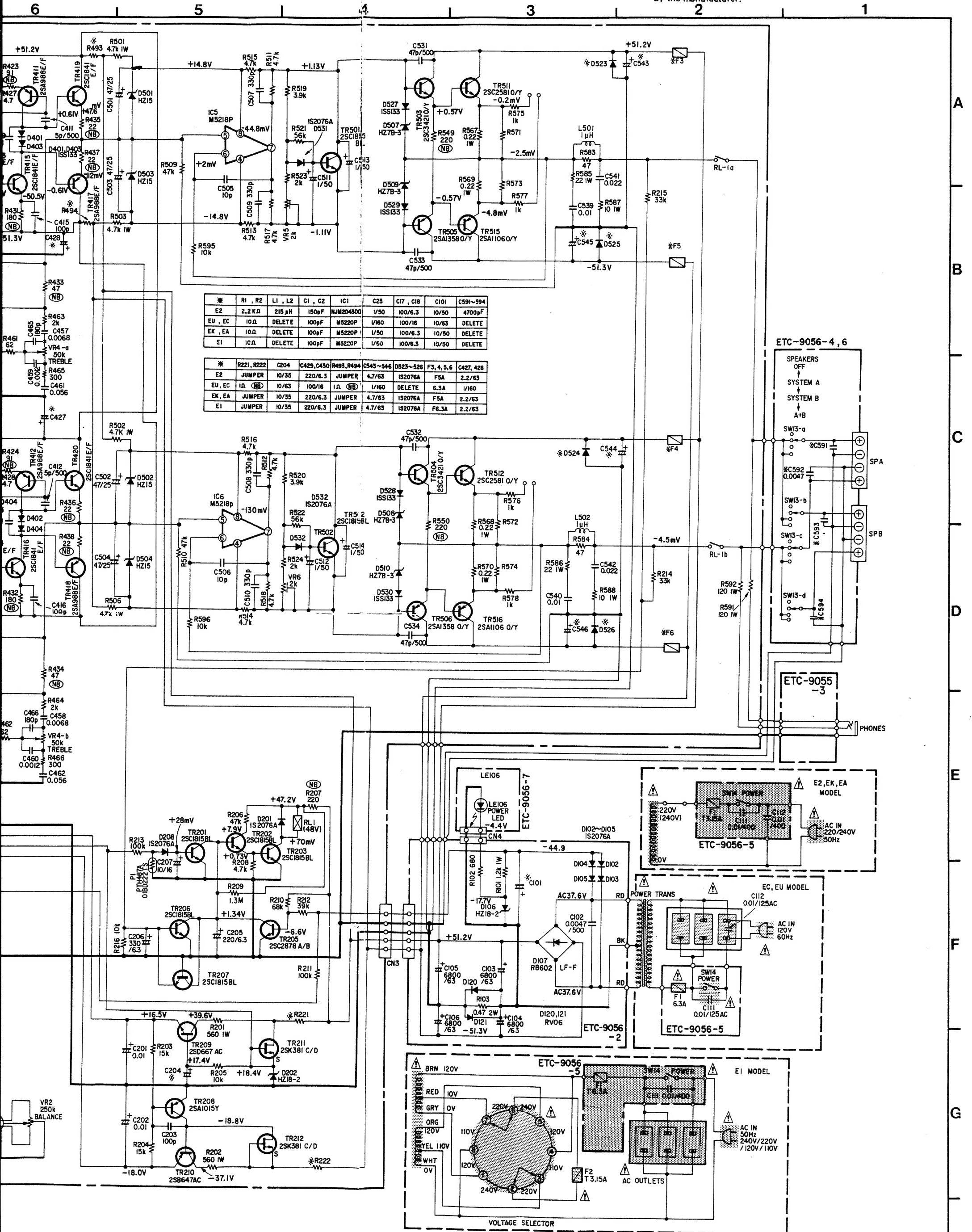
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NOTES:  
ALL RESISTANCE  
ALL CAPACITANCE  
EVERY VOLTAGE  
CIRCUIT AND PA

⚠ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.



## NOTES:

ALL RESISTANCE VALUES IN OHM, K = 1,000 OHM, M = 1,000,000 OHM.

ALL CAPACITANCE VALUES IN MICROFARAD, P = MICRO-MICRO FARAD.

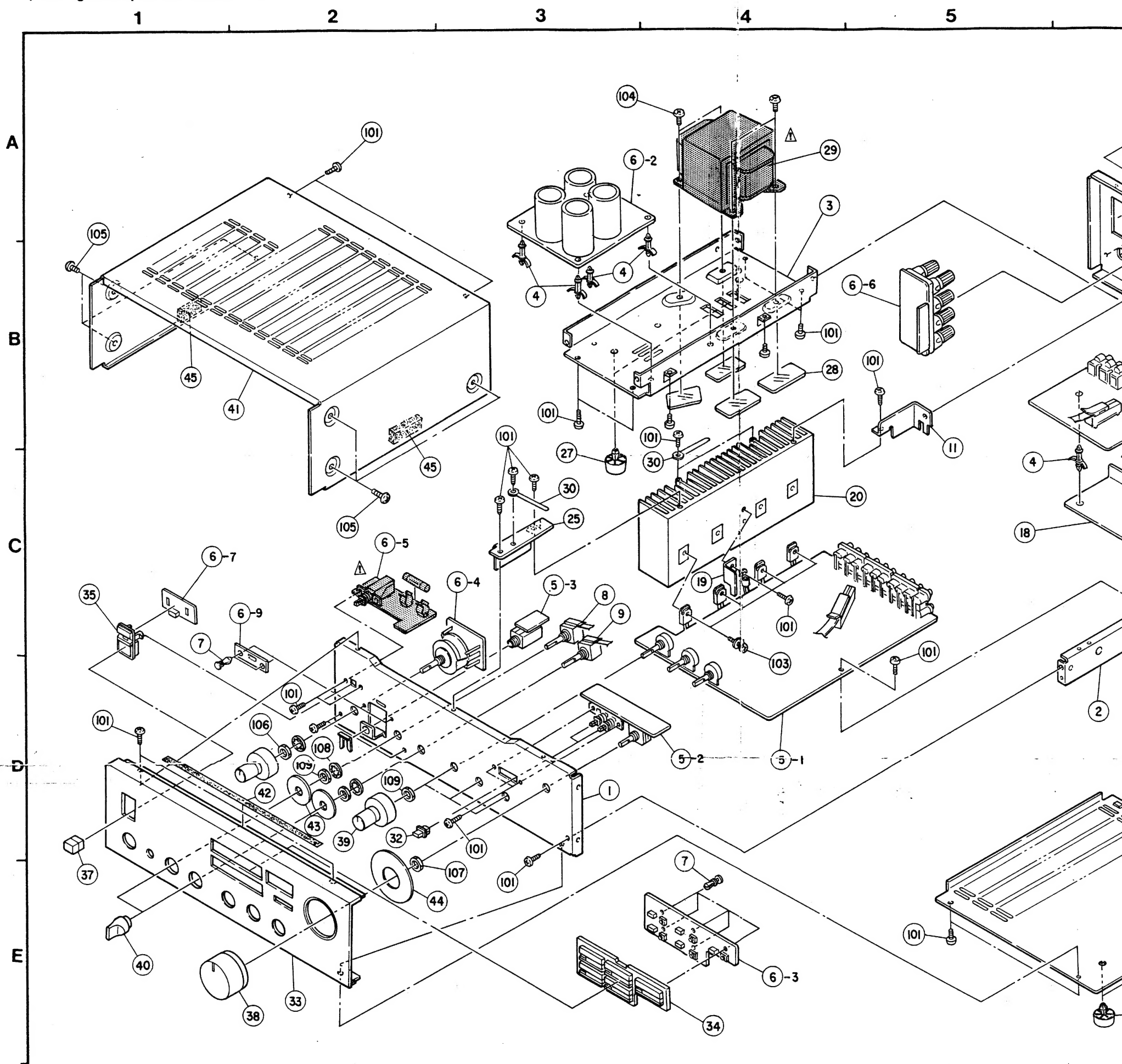
EVERY VOLTAGES AND CURRENTS IS MEASURED AT NO SIGNAL INPUT CONDITION.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.



# EXPLODED VIEW OF CHASSIS AND CABINET

(This figure is specifications of E2.)



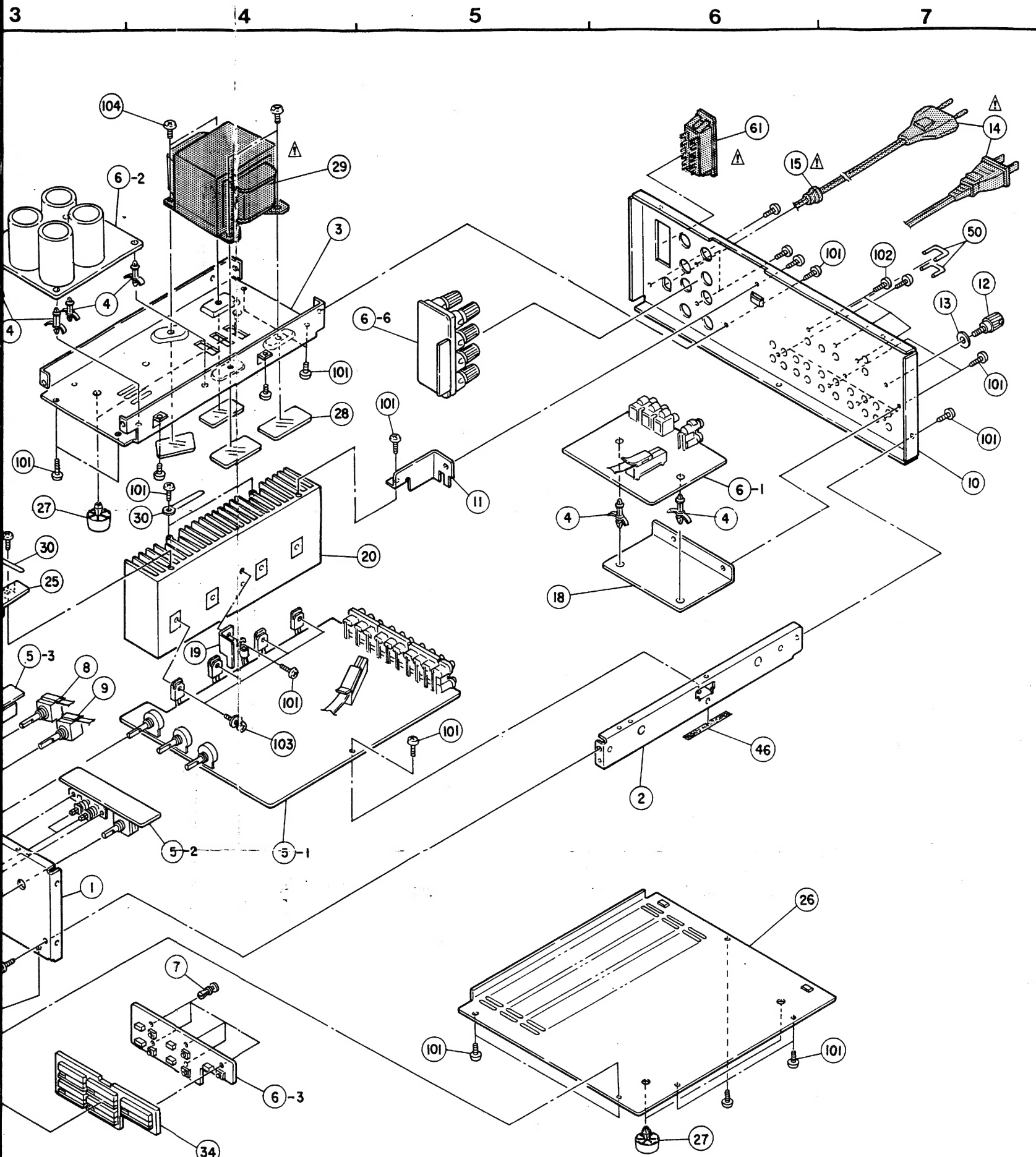
- Note 1. See addendum list rightside for the parts with asterisk (\*) on the Ref. No. and the other parts not included in the list.  
 2. \* marked not included EXPLODED VIEW OF CHASSIS AND CABINET.  
 3. This list is prepared based on E2 BLACK VERSION.

## EXPLODED VIEW OF PARTS LIST for E2 BLACK VERSION

Ref. No.	P Part No.	Part Name & Descriptions	Q'ty	Ref. No.	Part No.	Part Name & Descriptions	Q'ty	Ref. No.	Part No.	Part Name & Descriptions	Q'ty
1	4119018206	FRONT CHASSIS	1	25	4129039107	RADIATOR BRACKET	1	50	2090055005	SHORT PIN	2
2	4119020207	SIDE CHASSIS	1	26	1059044207	BOTTOM COVER	1	51	—	—	—
3	4119021206	TRANS CHASSIS	1	27	1049003009	FOOT	4	SCREWS, NUTS			Q'ty
4	4150228000	P.C.B. HOLDER	6	28	4149017002	SAFETY PLATE	4	101	4737002034	TAPPING SCREW (S) 3x6 (BLACK)	42
*5	ETC90558	INPUT & POWER UNIT	1s	*29	2339542004	POWER TRANS	1	102	4737500044	TAPPING SCREW (P) 3x8 (BLACK)	9
*6	ETC90568	EQ & PS UNIT	1s	30	4450048016	CORD HOLDER (L50)	3	103	4700012022	CROSS PAN SCREW WITH SW, W 3x12	4
7	4770210016	PUSH RIVET	7	*31	4450033005	WIRE CLAMP BAND	10	104	4737004016	TAPPING SCREW (S) 4x6	4
8	2123614009	ROTARY REMOTE SW (T. MONI)	1	*32	1139072005	PUSH KNOB (L)	2	*105	4737007000	TAPPING SCREW (S) 4x8 (BLACK)	6
9	2123614012	ROTARY REMOTE SW (PHONO)	1	*33	1449025234	FRONT PANEL ASS'Y	1	106	—	—	—
*10	1059053104	BACK PANEL	1	*34	1139073224	PUSH KNOB (F) ASS'Y	1	107	4756006008	NUT M3	2
11	4129040002	BRACKET	1	*35	1469044101	KNOB GUIDE (P) ASS'Y	1	PACKING & ACCESSORIES (not included EXPLODED VIEW)			Q'ty
12	2050071016	TERMINAL ASS'Y	1	36	—	—	—	201	5049102003	STYLEN PAPER	1
13	4770018001	WASHER (P-87)	1	*37	1139070104	PUSH KNOB (P)	1	202	5059102006	POLY COVER	1
*14	2062002031	AC CORD WITH PLUG	1	*38	1129012004	VR KNOB ASS'Y	1	203	5039124004	CUSHION	2
*15	4450020005	CORD BUSH (4K-4)	1	*39	1129013207	KNOB ASS'Y	4	*204	5019101063	CARTON CASE	1
16	—	—	—	*40	1129014109	KNOB ASS'Y	2	205	5119160108	INST. MANUAL	1
*17	2538010007	CERAMIC CAP. 0.01μF/400V (AC)	1	*41	1029013307	TOP COVER	1	*206	5139111014	COLOR LABEL (BLACK)	2
18	4129041001	P.W.B. SUPPORT	1	42	1229006017	SPACER	1	207	5138295009	CONTROL CARD	1
19	4129044008	BRACKET	1	43	1229007029	BLIND RING	2				
20	4179013102	POWER RADIATOR	1	44	1229007032	BLIND RING	1				
21	4150234007	INSULATING SHEET	4	45	4619001001	RUBBER SHEET	2				
22	2730273011	TRANSISTOR 2SC2581(O)/(Y)	2	46	—	—	—				
23	2710160018	TRANSISTOR 2SA1106(O)/(Y)	2	*47	4150088004	INSULATING SHEET	1				
24	2760289004	POSITIVE THERMISTOR PTH487A01BD222TS	1	*48	2050089008	7P W TERMINAL	1				
				49	1229006033	SPACER	1				

⚠ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.

DENON



WARNING:

1. Component parts  
Parts marked with ⚠ and/or ⚡ the specified parts for replacement.
2. Leakage current  
Before returning the appliance to service, check for leakage current (an error of not more than 5%) to ground. Reverse the power plug if necessary. Any current measured MUST NOT exceed 0.5mA.



WARNING

ADDENDUM LIST

Ref. No.	Part Name & Description
5	INPUT & POWER UNIT
6	EQ. & PS UNIT
10	BACK PANEL
⚡ 14	AC CORD
⚡ 15	CORD BUSH
⚡ 29	POWER TRANS
33	FRONT PANEL ASS'Y
34	PUSH KNOB (F) ASS'Y
47	INSULATING SHEET
48	7P W TERMINAL
⚡ 61	AC OUTLET (POLARIZED)
62	DANGEROUS MARK
63	FUSE LABEL
64	LA APPROVAL MARK
⚡ 65	VOLTAGE SEL SW
66	SHIELD BRACKET
67	FUSE HOLDER
⚡ 68	FUSE (3-15A)
69	VOLTAGE LABEL
70	CAUTION SHEET
71	BLIND SHEET
72	EARTH LABEL
73	NOTICE SHEET
74	NOTICE SHEET
107	NUT M3
111	TAPPING SCREW (S) 3x6
112	TOOTH WASHER φ3
113	3T LUG
114	TOOTH WASHER φ4
204	CARTON CASE
207	CONTROL CARD
211	SAFETY INSTRUCTION
212	WARRANTY IN ENVELOPE
213	IMPORTANT LABEL
214	CAUTION PAPER
215	CAUTION LABEL
216	CSA LABEL

See addendum list rightside for the parts with asterisk (\*) on the Ref. No. and the other parts not included in the list. Parts marked not included EXPLODED VIEW OF CHASSIS AND CABINET. This list is prepared based on E2 BLACK VERSION.

E2 GOLD VERSION PARTS LIST  
(Same as BLACK VERSION except the followings.)

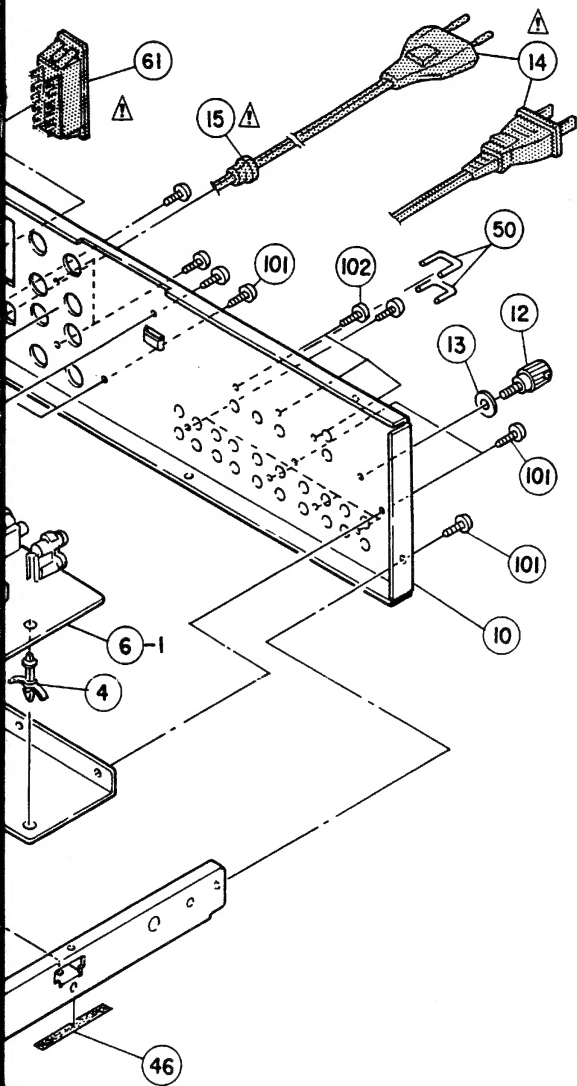
Part Name & Descriptions	Q'ty	Ref. No.	Part No.	Part Name & Descriptions	Q'ty
DIATOR BRACKET	1	50	2090055005	SHORT PIN	2
OTTOM COVER	1	51	—	—	—
OT	4	SCREWS, NUTS			
FETY PLATE	4	Q'ty			
VER TRANS	1	101	4737002034	TAPPING SCREW (S) 3x6 (BLACK)	42
RD HOLDER (L50)	3	102	4737500044	TAPPING SCREW (P) 3x8 (BLACK)	9
RE CLAMP BAND	10	103	4700012022	CROSS PAN SCREW WITH SW, W 3x12	4
SH KNOB (L)	2	104	4737004016	TAPPING SCREW (S) 4x6	4
ONT PANEL ASS'Y	1	**105	4737007000	TAPPING SCREW (S) 4x8 (BLACK)	6
SH KNOB (F) ASS'Y	1	106	—	—	—
OB GUIDE (P) ASS'Y	1	107	4756006008	NUT M3	2
SH KNOB (P)	1	PACKING & ACCESSORIES (not included EXPLODED VIEW)			
KNOB ASS'Y	1	201	5049102003	STYLEN PAPER	1
OB ASS'Y	4	202	5059102006	POLY COVER	1
OB ASS'Y	2	203	5039124004	CUSHION	2
P COVER	1	**204	5019101063	CARTON CASE	1
ACER	1	205	5119160108	INST. MANUAL	1
ND RING	2	**206	5139111014	COLOR LABEL (BLACK)	2
ND RING	1	207	5138295009	CONTROL CARD	1
BBER SHEET	2				
—	—				
ULATING SHEET	1				
W TERMINAL	1				
ACER	1				

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
32	1139072021	PUSH KNOB (L)	2
33	1449025221	FRONT PANEL ASS'Y	1
34	1139073211	PUSH KNOB (F) ASS'Y	1
35	1469044114	KNOB GUIDE (P) ASS'Y	1
37	1139070117	PUSH KNOB (P)	1
38	1129012017	VR KNOB ASS'Y	1
39	1129013210	KNOB ASS'Y	4
40	1129014112	KNOB ASS'Y	2
41	1029013323	TOP COVER	1
105	4737014006	TAPPING SCREW (S) 4x8	6
204	5019122097	CARTON CASE	1
206	5139111001	COLOR LABEL (GOLD)	2

⚠ Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.

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WARNING:

1. Component parts

Parts marked with ⚠ and/or shading in this service manual have special characteristics important to safety. Be sure to use the specified parts for replacement.

2. Leakage current

Before returning the appliance to customer, test the leakage current when the power plug is connected. Use a calibrated (with an error of not more than 5%) leakage current tester and measure the leakage current from any exposed metal to the earth ground. Reverse the power plug polarity and test the above again.

Any current measured MUST NOT EXCEED 0.5 miliamps. Corrective measure must be taken if it exceeds the limit.



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

*Donor 19*

ADDENDUM LIST

Ref. No.	Part Name & Descriptions	Part No.				
		E1/EP1 for Asia	EU for U.S.A.	EA for Australia	EK for U.K.	EC for Canada
5	INPUT & POWER UNIT	ETC9055D	ETC9055E	ETC9055F	ETC9055F	ETC9055C
6	EQ. & PS UNIT	ETC9056D	ETC9056E	ETC9056F	ETC9056F	ETC9056C
10	BACK PANEL	1059056004	1059048009	1059053104	1059053104	1059048009
⚠ 14	AC CORD	2006031026	2062039004	2062012018	2062024006	2062039004
⚠ 15	CORD BUSH	4450028007	4450020005	MD-2982H	4450020005	4450020005
⚠ 29	POWER TRANS	2339545001	2339540006	2339647009	2339547009	2339544002
33	FRONT PANEL ASS'Y	1449025218	1449025218	1449025234	1449025234	1449025218
34	PUSH KNOB (F) ASS'Y	1139073208	1139073208	1139073224	1139073224	1139073208
47	INSULATING SHEET	—	—	4150088004	4150088004	—
48	7P W TERMINAL	—	—	2050089008	2050089008	—
⚠ 61	AC OUTLET (POLARIZED)	2033926007	2033926007	—	—	2033926007
62	DANGEROUS MARK	—	5138266009 (2)	—	—	—
63	FUSE LABEL	—	5130895038	—	—	—
64	LA APPROVAL MARK	—	5138300004	—	—	—
⚠ 65	VOLTAGE SEL SW	2120186006	—	—	—	—
66	SHIELD BRACKET	4149021001	—	—	—	—
67	FUSE HOLDER	2020013101	—	—	—	—
⚠ 68	FUSE (3-15A)	2061015074	—	—	—	—
69	VOLTAGE LABEL	—	—	5130362008 (2)	5130362008 (2)	—
70	CAUTION SHEET	—	—	—	5130364006	—
71	BLIND SHEET	—	—	5130348006	—	—
72	EARTH LABEL	—	—	5130140000	—	—
73	NOTICE SHEET	—	—	5130209006	—	—
74	NOTICE SHEET	—	—	5130210008	—	—
107	NUT M3	—	—	4756006008 (2)	4756006008 (2)	—
111	TAPPING SCREW (S) 3x6 BLACK	4737002034 (3)	—	4737002034 (1)	—	—
112	TOOTH WASHER φ3	—	—	4753001051 (5)	—	—
113	3T LUG	—	—	2050003107	—	—
114	TOOTH WASHER φ4	—	—	4753100004 (6)	—	—
204	CARTON CASE	5019101063	5019104060	5019101063	5019101063	5019104060
207	CONTROL CARD	—	—	—	—	—
211	SAFETY INSTRUCTION	—	5111041005	—	—	—
212	WARRANTY IN ENVELOPE	5158053108/ 5158052206	5150349108	—	—	—
213	IMPORTANT LABEL	—	—	—	5139133005	—
214	CAUTION PAPER	—	—	5130211007	—	—
215	CAUTION LABEL	—	—	—	—	—
216	CSA LABEL	—	—	—	—	5138311006

E2 GOLD VERSION PARTS LIST  
(Same as BLACK VERSION except the followings.)

Ref. No.	Part No.	Part Name & Descriptions	Q'ty
32	1139072021	PUSH KNOB (L)	2
33	1449025221	FRONT PANEL ASS'Y	1
34	1139073211	PUSH KNOB (F) ASS'Y	1
35	1469044114	KNOB GUIDE (P) ASS'Y	1
37	1139070117	PUSH KNOB (P)	1
38	1129012017	VR KNOB ASS'Y	1
39	1129013210	KNOB ASS'Y	4
40	1129014112	KNOB ASS'Y	2
41	1029013323	TOP COVER	1
105	4737014006	TAPPING SCREW (S) 4x8	6
204	5019122097	CARTON CASE	1
206	5139111001	COLOR LABEL (GOLD)	2